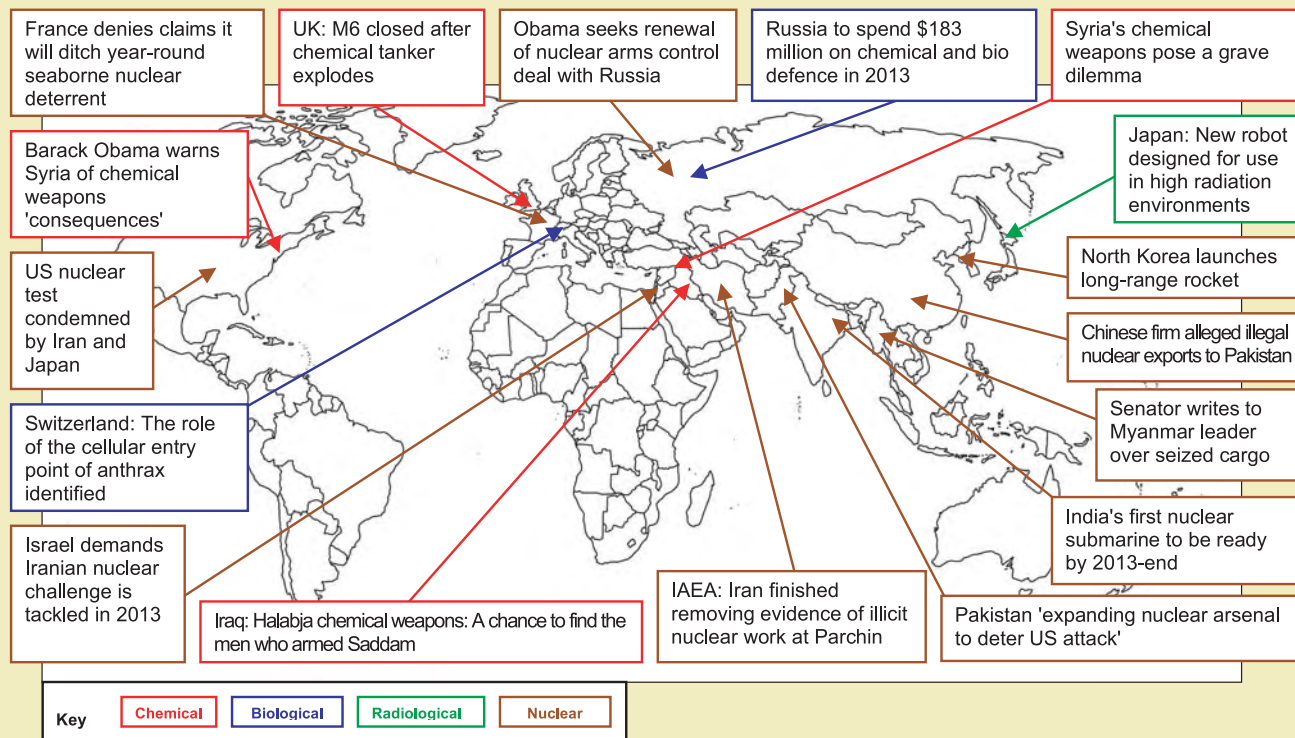


# CBRNNews

## GLOBAL CBRN THREATS AND ACTIVITY



Our threat overview picture (above), in collaboration with CBRN monitoring sources, shows a selection of incidents in the last two months that have been added to our online news feed: [www.cbrneworld.com/news](http://www.cbrneworld.com/news).

### THREAT WATCH

#### Syria continues to cause panic

More from [guardian.co.uk](http://guardian.co.uk) on Barack Obama. Barack Obama has warned the Syrian regime that any use of chemical weapons on its own people would be "totally unacceptable" and would result in "consequences". His words have been echoed by other US officials and international leaders and follow a 'blip' in reporting that chemical weapons were being made ready for use. Subsequently, US authorities sought to downplay these suggestions saying 'they hadn't seen any further reports on this'. Meanwhile, the opposition have taken possession of a chemical factory and move ever closer to a major stockpile. Videos have circulated of a man killing rabbits with chemicals more normally associated with explosive pre-cursors. The Israelis are alleged to have commandos all over Syria covering some of the many (50+) sites that the weapons may be located. Helpfully, the Syrians have made a nice round number, 1000 tonnes, of CWAs – always a sign of quality intelligence. In the meantime,

private security is exploiting a loophole that military aid can not be provided to the opposition in order to deliver CBRN training. It can only get better, one hopes, but it will almost certainly get worse first.

#### Chemical tanker explosion on UK's M6 motorway

The M6: a motorway that saw a CBRN false alarm on a bus in July earlier this year has suffered a genuine chemical emergency after a chemical tanker exploded in a 50ft fireball, leaving eight fire fighters and two drivers needing treatment for exposure to toxic fumes. Terrified drivers had fled their cars and the driver of the lorry, which was carrying hydrochloride and paper, was among those who received medical treatment. The response to an actual life threatening incident was a fraction of the previous false alarm that had 18 fire appliances and 4 ambulances to respond to a man with an electronic cigarette. The care taken over a possible terrorist incident, compared to a Hazmat incident that left 8 fire-fighters injured does beg

the question of whether we take hazmat seriously enough.

#### Russia gets its CBRN spending going

Russia will spend over 5.6 billion roubles (\$183 million) on improving defence against chemical and biological threats in 2013, a Defence Ministry official said on Tuesday, 11 Dec 2012. "The overall spend on measures to defend against chemical and biological threats in 2013 will be around 5.65 billion roubles," the head of Russia's Nuclear, Chemical and Biological Defence (NBCD) department Maj. Gen. Yevgeny Starkov is reported to have said.

The federal spending program for a "National System of Chemical and Biological Security for Russia from 2009-2015" includes 1.76 billion roubles for scientific research and testing. A further 2.7 billion roubles will be put into "capital investment". "Under the program we plan to fit out organisations involved in working with

dangerous micro-organisms and highly toxic substances with modern equipment, as well as modernise a range of potentially dangerous facilities, thus reducing the risk of an accident" he said.

Starkov said in November that it would be impossible to completely eradicate chemical weapons stockpiles from the arsenals of the world's leading powers. "This type of weaponry cannot be completely excluded from combat arsenals because analysis of [...] spending, both in the United States and other Western countries on the development of new combat agents that fall under the provisions of the Convention, shows that this work is ongoing," Starkov said in an interview with Rossiya 24 TV. The Chemical Weapons Convention, in force since April 29 1997, has been signed by 188 of 195 UN member states. (RIA Novosti 11 Dec 2012)

#### **Hot robots**

Mitsubishi Heavy Industries has developed a robot designed to be able to operate within a highly-radioactive environment. Named MHI-MEISter, the robot is able to carry out a wide range of actions. (The Asahi Shimbun 09 Dec 2012). The first has been offered to TEPCO for use in the aftermath of Fukushima.

#### **This is how you make a bomb from Thorium...**

Scientists often struggle to keep their intelligence to themselves. So it was with mildly raised eyebrows that the world read in Nature (becoming slightly renowned as the place to put your articles on how to make a CBRN device after the avian flu debacle) that a group of British Universities have identified a way in which the use of Thorium as a non-proliferable nuclear fuel could be used to mask or facilitate the production of uranium 233. Demonstrating how clever they were, they indicated how only 1.6 tonnes of thorium would be needed to produce 8kg of U-233 (the smallest amount needed for a nuclear device).

The chemical processes that are needed for protactinium separation could possibly be undertaken using standard lab equipment, potentially allowing it to happen in secret, and beyond the oversight of organisations such as the International Atomic Energy Agency (IAEA), the paper says. Using the process identified in their paper, they add that this could be done "in less than a year". While it is certainly useful to highlight the risks, one must question whether its more

appropriate to highlight the issue privately to IAEA and government institutions rather than publishing academic papers that might become self-fulfilling prophecies.

#### **US sub-critical nuclear test in Nevada draw condemnation**

A sub-critical test at the Nevada national Security Site – part of a series that have gone on since 1996 – has drawn criticism from Iran and Japan. Iran sees it as hypocritical in the face of the attention it receives. Japan's rebuke was delivered by the Hiroshima Mayor, Kazumi Matsui, who wondered why the Obama administration carried out the test despite saying he would "seek a nuclear-free world." The Pollux sub-critical experiment was carried out by scientists at the Los Alamos, New Mexico national laboratory and the Sandia National Laboratories, and involved a tiny sample of plutonium bomb material. International inspectors were not allowed to witness the experiment, as Washington has prevented access to its test site since the late 1990s. Wednesday's test is the twenty-seventh American "sub-critical experiment" since full-scale nuclear weapons tests were halted in 1992. (RT 08 Dec 2012)

#### **Russia takes dim view of Obama's attempts to renew Nunn-Lugar**

In an appeal aimed at Moscow, Obama offered to renegotiate terms of the 20-year-old threat-reduction initiative known for its chief sponsors, former Sen. Sam Nunn and outgoing Sen. Richard G. Lugar, and use it as a template for future US co-operation with Russia. Sadly, Russia has taken an increasingly dim view of US efforts in this area due to a one-sided approach to inspection and verification. Coupled with Russia taking an increasingly unilateral and dominant approach to foreign policy, this will make negotiations an uphill struggle to renew.

#### **India's first nuclear submarine to be ready by the end of 2013**

India's nuclear programme, like Pakistan's, gets ever larger as the ability to launch from submarines gets ever closer. Whilst the international focus was on the last conflict issues of US-Russian nuclear aggression after the Cold War, there appears to have been relatively little focus in the arms race in India, Pakistan and China. Israel's own undeclared program – leaked by a nuclear technician who was subsequently kidnapped from Europe and imprisoned (one might ask what for if there is no program?) is an

elephant in the Middle Eastern room. It highlights a tendency to focus on the wrong programmes. The CBRN mess in Syria is a great example when one considers how much time that has been spent on Iran and Iraq – leaving the genuine possessors with free reign.

#### **Qazis court case raises spectre of WMD attack in NY**

Accused of planning a WMD attack in NY, the Qazi brothers, originally from Pakistan though now naturalised, were found in possession of bomb making materials including high concentration peroxides. The case continues...

#### **Lugar awarded by FAS as his legacy falls into jeopardy**

Sen. Richard Lugar (R-Ind) was presented with the Federation of American Scientists award recently for his work on non-proliferation. With the democrat senator Sam Nunn, he created the Nunn-Lugar Co-operative threat reduction program in 1992 to secure and dismantle former soviet munitions. While deserving of the award and a great advocate for the non-proliferation cause, the Nunn-Lugar work has polarised views. Many suggest that it has done little other than to fund work Russia should have paid for itself and in effect has subsidised Russia's military re-armament by dealing with its legacy disposal issues.

#### **BWC 2012 Meeting of State Parties continues to run up respectable hotel bill**

A cynic might observe that the 1972 Biological and Toxin Weapons Convention and its reviews and meetings have demonstrated how staggeringly little can be achieved and yet so much hot air generated. The world breathes easier now that the Marshall Islands have joined the BWC (did we honestly fear that the Marshall Islands were developing a programme?), but the majority of discussion is breathtakingly irrelevant to making the world safer. Lots of discussion about process, documentation and procedures of meetings. Zippadee do dah diddy about anything that might amount to actually actively engaging with verification, future developments and the fact we have only everyone's words that they are not doing anything. There are only three members of the support unit for the BWC, and since 2010 the annual reports on the UN website have dried up – and even the confidence building measures of self-reporting have been in decline since 2010 (72 countries participated compared to 68 in 2012). If bio is a serious threat we need to do more. If it isn't we need to stop wasting diplomats' time with it.

## PRODUCT & RESEARCH WATCH

### DHS Crystallise a new radiation detection solution

DHS's Domestic Nuclear Detection Office has made new radiation detection crystals commercially available as of October 2012. The new structures are called strontium iodide and caesium lithium yttrium chloride respectively. They are a form of scintillation technology, i.e., they convert incoming radiation to pulses of light that can be measured. While no technical data was available at the time of printing, DNDO claim the crystals are cheaper and offer better energy resolution than existing scintillators. A particular point of interest is the claim that they are easier to grow – something which has limited other scintillation materials.

### Not a bad year for Lawrence Livermore.

#### Actually it's been pretty awesome!

As 2012 draws to a close it's a time for reflection and amongst that, one can't help but note some pretty neat achievements by Lawrence Livermore this year:

1. Newly discovered element 116 called Livermorium
2. New forensic approach developed for identifying human remains
3. First ever simulation of early-stage radiation damage
4. Plastic developed for detection of neutron emitting special nuclear material
5. Novel nanotube fabric developed for new CBRN PPE
6. LLNL licensed out its DNA microarray system

Nice work LLNL. Your work's cut out for you beating that next year!

### Sigma extracting the liquid...

Aldrich Materials Science has filed a provisional patent application for a newly discovered procedure for the production of Metal Oxide Frameworks (MOFs). High purity MOF products prepared by the liquid-free process may be ideally suited as rare earth containing materials for sensors and detectors, electronic or magnetic materials. Liquid-free preparation opens up potentially higher purity MOF products which may enhance existing applications and open new avenues for products.

### 1st Detect 'snare' patent for novel MS ion trap control technology

1st Detect Corporation, a subsidiary of Astrotech Corporation, announced that the United States Patent Office has allowed the issuance of a key patent for the company's unique method to miniaturise the electrical circuitry for a

mass spectrometer ion trap used for chemical analysis and detection. The patent, entitled "End Cap Voltage Control of Ion Traps", published as USPTO No. 8,334,506, represents a key technological advantage for 1st Detect to optimise the operation of an ion trap using compact and efficient circuitry. "The technology protected by this patent supports our objective to offer the most affordable, high performance miniature mass spectrometer for both laboratory and field applications" added David Rafferty, the inventor of the novel technology and President and CTO of 1st Detect.

### Scott Safety launches its new First Responder Respirator

Based on the successful design of Scott Safety's General Service Respirator (GSR) for the military, currently used by the Ministry of Defence (MOD), Scott Safety's First Responder Respirator (FRR) is Scott's newest offering to the civil market. The FRR delivers lower user burden, improved systems integration and ease of operation. It is compatible with conventional round filters with a Din 40 thread, Powered Air Purifying Respirators (PAPR), Self Contained Breathing Apparatus (SCBA) and compressed air airline breathing systems. The capability to function as a combination respirator, a Scott Modular Respiratory Protection System (MRPS) is facilitated by the use of modular side fittings and different exhalation structures, including auto switchable. This modular construction allows the user to easily clean and maintain each element of the mask, as well as attach additional radio and voice amp options.

### Argon's CBRN training systems selected yet again!

Argon has been having an excellent streak of procurement success, bucking the general trend of the economy and showing the importance that countries are placing in optimising training systems as equipment programmes tighten. In this case, the award was in Canada via Patlon Aircraft & Industries Limited of Halton Hills, Ontario. The C\$6.6 million contract is to supply a simulator system that will be used to train Canadian Armed Forces personnel in the use of new portable devices that detect chemical warfare agents and toxic industrial chemicals during military operations.

### From the flames

Remploy has launched the Phoenix protective suit, which claims to be up to 30% lighter than comparable suits on the market. The outer fabric of the

Phoenix lightweight CBRN protection suit is fire-retardant, with a separate hood that is compatible with almost any respirator. The hood can be worn as part of the suit or for stand-alone protection.

### FLIR successfully testing in the hands of CBRNe World and Cranfield University

FLIR's newly released Fido X3 trace explosives detector has successfully passed both the basic and a modified, enhancement of the ASTM standard for trace explosive detectors (E2520 – 07 Standard Practice for Verifying Minimum Acceptable Performance of Trace Explosive Detectors).

The tests were carried out in conjunction with *CBRNe World* and Cranfield University, who together provide the testing service and have developed the enhanced ASTM test. The two days of testing included both lab testing, looking at trace amounts of explosive down to the 3ng range, and field tests. The FLIR Fido X3 passed the lab-based ASTM basic standard, and was then put through the more rigorous ASTM enhanced test, which looked specifically at repeatability and consistency of detection. This second day involved post-detonation testing on the Cranfield explosives range, where trace samples of eight explosives were taken from witness plates in the blast area and presented to the FIDO X3 detector, which successfully detected the presence of a variety of them.

Andrew Johnston, Head of Explosives Testing for *CBRNe World* said: "We are all very pleased with the outcome of the last two days. The Fido X3 trace explosives detector has performed very well in difficult conditions, and we're happy to say it has passed everything we threw at it."

Dr Ross Harper, Senior Scientist and Explosives Specialist for FLIR said: "*CBRNe World* provided an exemplary testing experience for our new FIDO X3 ruggedised trace detector, conducted with both proficiency and professionalism. *CBRNe World* staff were highly knowledgeable in their field and delivered extensive, impartial, laboratory and range-based testing to ASTM standards upon our request. FLIR looks forward to maintaining this working relationship in the future."

### JOBWATCH

Pete Annuziati is retiring after 41 years in ECBC. Having started his CBRN stint in the 70s with M9 detector paper he has seen pretty much everything in service today come to fruition. The entire editorial staff wish him well in new pastures.



NEW CBRN COMBAT SUIT

# ADVANCED DESIGN

2012 : Swedish Armed Forces  
select Paul Boyé Technologies



CBRN individual protection  
equipment system (IPE - system)

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 Visit us!  
at Sispat ICOC Singapore  
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